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WHAT IS CLAIMED IS:

1. A latex composition, useful as a binder for inorganic and cellulosic materials to form a composite, comprising an aqueous dispersion of copolymer particles, the copolymer composition being such that the copolymer has a  $T_g$  whereby the resulting composite has sufficient strength for necessary handling and use and maintains dimensional stability with increased temperature and humidity.
2. A latex composition, useful as a binder for inorganic and cellulosic materials to form a composite, comprising an aqueous dispersion of copolymer particles, the copolymer composition being such that the copolymer has a  $T_g$  whereby the resulting composite (a) maintains dimensional stability with increased temperature and humidity and (b) has a modulus of rupture of at least about 130 psi as measured by ASTM 367-78.
3. A composition of Claim 1 wherein the copolymer has a  $T_g$  at least about 35°C.
4. A composition of Claim 1 wherein the copolymer has a  $T_g$  from about 35°C to about 115°C.

5. A composition of Claim 1 wherein the copolymer has a  $T_g$  from about 50°C to about 110°C.

6. A composition of Claim 2 wherein the composite modulus of rupture is at least about 140 psi.

5            7. A composition of Claim 1 wherein the copolymer comprises a monovinylidene monomer and an aliphatic conjugated diene.

8. A composition of Claim 7 wherein the copolymer comprises the monovinylidene monomer, the  
10 aliphatic conjugated diene monomer and an  $\alpha,\beta$ -ethylenically unsaturated monomer.

9. A composition of Claim 7 wherein the monovinylidene monomer is styrene and the aliphatic conjugated diene is butadiene.

15            10. A composition of Claim 8 wherein the copolymer comprises styrene, butadiene and fumaric acid.

11. A composition of Claim 1 wherein the copolymer comprises a monovinylidene monomer and an  
20 ester of an ethylenically unsaturated carboxylic acid.

12. A composition of Claim 11 wherein the copolymer comprises the monovinylidene monomer, the ester of the ethylenically unsaturated carboxylic acid and an  $\alpha,\beta$ -ethylenically unsaturated carboxylic acid.

25            13. A composition of Claim 11 wherein the monovinylidene monomer is styrene and the ester of an

ethylenically unsaturated carboxylic acid is ethyl acrylate.

14. A composition of Claim 1 wherein the copolymer comprises two or more esters of an ethylenically unsaturated carboxylic acid.

15. A composition of Claim 14 wherein the ester(s) of the ethylenically unsaturated carboxylic acids are selected from the group consisting of methyl methacrylate and butyl acrylate, or ethyl acrylate and butyl acrylate.

16. A composition of Claim 1 wherein the copolymer comprises a hard monomer having as a homopolymer a  $T_g$  of at least about 80°C, and a soft monomer having as a homopolymer a  $T_g$  less than about 35°C.

17. A composition of Claim 16 wherein the hard monomer is present in an amount from about 50 to about 99 weight percent and the soft monomer is present in an amount from about 1 to about 50 weight percent.

SUB  
BT  
C1  
18. A composite board comprising inorganic or cellulosic materials or both inorganic and cellulosic materials and a latex binder comprising a copolymer with a  $T_g$  such that the resulting ceiling board maintains dimensional stability with increased temperature and humidity, and the resulting ceiling board has a modulus of rupture of at least about 130 psi as measured by ASTM 367-78.

19. The composite board of Claim 18 wherein the latex binder comprises a monovinylidene monomer, an

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6,82 aliphatic conjugated diene monomer and an  $\alpha$ - $\beta$ -ethylenically unsaturated carboxylic acid.

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~~20.~~ The composite board of claim ~~18~~ wherein  
the latex binder comprises methyl methacrylate, ethyl  
5 acrylate and fumaric acid.

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~~21.~~ The composite board of claim ~~18~~ wherein  
the latex binder comprises a copolymer of styrene and  
butadiene.

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~~22.~~ The composite board of Claim ~~18~~ wherein  
10 the latex binder comprises a copolymer of styrene and  
one or more esters of ethylenically unsaturated carboxylic  
acid selected from the group consisting of methyl  
methacrylate, ethyl acrylate and butyl acrylate.

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C ~~23.~~ ~~A ceiling tile of Claim 18~~ wherein the  
15 latex binder comprises a polymer of styrene, ethyl  
acrylate and acrylic acid.

Add B2.

Add  
C2

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